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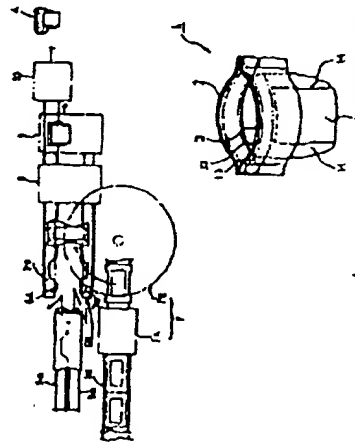
(72) Inventor: WADA TAKAO

(54) MANUFACTURE OF BRIEFS TYPE DISPOSABLE DIAPER COPYRIGHT: (C)1991,JPO&Japlo

(57) Abstract:

PURPOSE: To reduce costs by enabling an automatic large-scale production method by forming a back body wrapping part and front body wrapping sections to place a diaper main body thereon orthogonally and to bond it thereto.

CONSTITUTION: Optional stock is selected for a back body wrapping section and front body wrapping sections (2 and 3) independently of diaper body 1. In other words, the diaper body 1 is relayed to a turning transfer device 7B behind a suction conveying device 7A and the diaper body 1 is turned by 90° to be supplied to a specified position between belt bodies 2a and 3a of both body wrapping sections perpendicular thereto. Then the diaper body is conveyed to a bonding means 8 to bond it integrally with the belt bodies 2a and 3a of both body wrapping sections. Thereafter, the assembly is conveyed to a folding means 9 to be folded double and side ends of the belt bodies 2a and 2b of both the body wrapping sections are cut while being bonded by a bonding/ cutting means 10.



*full translation attached
No equiv. outside Japan*

Translation of
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Title of the invention Brief-type disposable diaper production
method

Patent application number H1-315742

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- 2 -

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Specification

1. Title of the invention

Brief-type disposable diaper production method

2. Scope of the patent claim

A brief-type disposable diaper production method involving

a process whereby a water-absorbent material is inserted between an outer sheet and an inner sheet to form a diaper body;
a process whereby a front waistband and a continuous back waistband having an elastic member at least at the side is formed;

a process whereby the diaper body is overlapped and adhered to both waistbands in the transverse direction;

a process whereby the diaper body is folded double and both waistbands are brought into contact; and

a process whereby the contacted waistbands are cut to prescribed dimensions and the regions near the cuts are adhered to integrate the waist parts at the edge portions

to produce a brief-type disposable diaper from a diaper body and a single waistband.

3. Detailed description of the invention

- 3 -

Field of industrial use

The present invention relates to a brief-type disposable diaper production method.

Prior art

Known technology relating to this type of brief-type disposable diaper production method is disclosed in Japanese Unexamined Patent Application Number S57-77304: "Diaper-brief and Production Method Therefor".

Problems to be overcome by the invention

The abovementioned technology is disadvantageous in that as there is a cut-out portion in order to form an opening for the wearer to insert his/her legs, it is necessary to add a process for forming the cut-out portion, which raises production costs.

Means of overcoming the abovementioned problem

The present invention overcomes the abovementioned problem of the prior art and allows the production of brief-type disposable diapers by an automated large-scale production method involving a process whereby a diaper body is formed; a process whereby a back waist part and front waist part are formed; a process whereby the diaper body is overlapped and adhered to both waist parts in the transverse direction; and a process whereby the diaper body is adhered and integrated.

Embodiment

The present invention is described in detail based on the embodiment shown in the following drawings.

Figures 4 through 6 show an example of a brief-type disposable diaper produced according to the present invention: 1

- 4 -

represents the diaper body, formed by inserting absorbent material 13 between outer sheet (for example, a water-impermeable P.E. sheet) 11 and inner sheet (for example, water permeable nonwoven cloth) 12.

2 is the back waist part and 3 is the front waist part, and the material for both waist parts 2 and 3 may be selected independently from the material for diaper body 1, although in this embodiment, the same material is used; the double layer having P.E. sheets 21 and 31 as the outside and nonwoven cloth 22 and 32 as the inside is formed, an elastic member sheet (for example, a polyurethane sheet) 23 and 33 is inserted into part thereof, so that at least the upper edge is expandable. It should be noted that it is also possible to have a single layer elastic sheet, to form a completely expandable construction. It should be noted that as waist parts 2 and 3 are preferably of an air-permeable material, it is desirable either to take the nonwoven cloth and elastic sheet, and exclude the P.E. sheet, or, when a P.E. sheet is used, to puncture a plurality of small holes therein. It is also possible to totally or partially affix the elastic member (rubber thread, rubber tape or the like) to a sheet of suitable material, to form an elastic sheet.

Moreover, the hole parts H for the insertion of the wearer's legs are dictated by the width and shape of the diaper body 1 and the width and shape of waist parts 2 and 3, and generally, the shape is such that the holes are toward the front side.

The brief-type disposable diaper production method of the

- 5 -

present invention will be described below with reference to Figures 1 through 3.

Figure a shows the diaper body 1 production process: absorbent body 13 is placed on outer sheet (back sheet) 11 supplied from outer sheet roller 11a, then inner sheet (top sheet) 12, supplied from inner sheet roller 12a, is supplied thereon, to achieve a sandwich-like insertion of absorbent body 1 between outer sheet 11 and inner sheet 12; then this is transported by the first conveyor device 4 to adhering-cutting device 15, and the circumference is firmly adhered by adhering-cutting device 15, or adhered with adhesive, then cut to the required shape. It should be noted that this process is the same as known diaper production processes, and it is possible to employ a conventional production line for disposable diapers.

It should be noted that the adhering-cutting device 15 comprises two stages: first unit 15a and second unit 15b. In first unit 15a, only adhesion and the cutting of cut-away parts P proceeds, to continuously form diaper body 1, then diaper body band 1a is transported to the next process, and may be cut crosswise to the required dimensions by second unit 15b when in the vicinity of the waistbands 2,3-adhesion process.

Moreover, as there are no cut-away parts P when diaper body 1 is long, it is also possible to achieve the aims of the present invention by only adhering in first unit 15a, then cutting in second unit 15b.

There are various possible shapes for the cut-away parts p, and the shape can be selected according to the shape of the

- 6 -

waistband 2,3 and the desired shape of hole parts H.

Figure 1(b) shows a waistband 2, 3 production line: elastic member sheet 23a, supplied by elastic member sheet roller 14, is cut along a continuous S-shaped cutting line in the central portion by cutting device 24 to form a pair of bands, back waistband 2a and front waistband 3a.

It should be noted that in the case of the multilayer constructions shown in Figure 3 (outer sheet (P.E. sheet) and elastic member sheet, inner sheet (nonwoven cloth) and elastic member sheet, or outer sheet and elastic member sheet-inner sheet), if elastic member sheet 23a is a band of the same width, and only part of sheet 21a, 22a is adhered, the elastic member sheet can be used effectively without cut-away parts, and holes of the desired shape can be found by selecting a suitable shape for waist part 2,3.

Figure 1(c) integrates the diaper body 1 process of Figure 1(a) and the waistband 2a, 3a process of Figure 1(b), to show the brief-type disposable diaper-forming process: the second conveying device 5a, 5b for waistbands 2a, 3a extends to become the third conveying device 6A and the force conveying device 6B.

Diaper body supply means 7 comprises suction conveying device 7A and rotation conveying device 7B, such that suction conveying device 7A for conveying the diaper body 1 that has been cut to the required dimensions is provided at the end of the first conveying device 4, after which diaper body 1 proceeds onto rotation conveying device 7B, then rotation conveying device 7B rotates the diaper body 1 through 90°, to supply diaper body 1

- 7 -

transversely to a prescribed position on waistband 2a, 3a.

It should be noted that rotation conveying device 7B receives the diaper body 1 on the conveying surface of suction conveying device 7A then supplies it by rotating 1/4 of a rotation while suction continues, then rotating the diaper body 1 that is between third conveying device 6A and fourth conveying 6B through 90°, and diaper body supply means 7 can achieve the aim by means of a suitable conveying means as follows: the adsorption surface of the diaper body is rotated through 90° according to the rotation of a suction rotation drum provided so as to be continuous with suction conveying device 7A, then the diaper body proceeds to a suction conveyor belt, whereupon it is conveyed in a transverse direction with respect to the conveying devices, thereby allowing diaper body 1 to be supplied between waistbands 2 and 3.

Diaper body 1 is then conveyed to adhesion means 8 and adhered to waistbands 2a, 3a by a suitable adhesion means such as an adhesive or heat seal.

It is then conveyed to folding means 9, and folded double by said folding means 9 to superimpose front waistband 2a and back waistband 3a.

The sides of the superimposed waistbands 2a and 2b are adhered and cut to the required shape by adhering-cutting means 10, to yield brief-type disposable diaper A.

Advantages of the invention

The present invention yields a brief-type disposable diaper by adhering and integrating a pair of waistbands and a

- 8 -

diaper body and cutting to the required dimensions and so conventional diaper production lines can be used for the diaper body, the waist parts are supplied as bands and automated mass production is possible due to a belt conveying device, so the brief-type disposable diapers can be effectively produced at extremely low cost.

4. Brief description of the drawings

Figure 1 is an explanatory diagram for the brief-type disposable diaper production method of the present invention: Figure (a) shows the diaper body production process, and Figure (b) shows the waistband-integrating process.

Figure 2 is a diagram of the diaper body, and Figure 3 shows the front waist part and back waist part.

Figure 4 shows an oblique view of a brief-type disposable diaper produced according to the present invention, Figure 5 is plane view and Figure 6 is a cross-sectional view of the diaper body.

- | | |
|----|--------------------------|
| 1 | Diaper body |
| 2 | Back waist part |
| 3 | Front waist part |
| 7 | Diaper body supply means |
| 8 | Adhesion means |
| 9 | Folding means |
| 10 | Cutting means |

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⑩ 日本国特許庁(JP)

⑩ 特許出願公開

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否 否 請求 未請求 請求項の数 1 (全6頁)

⑩ 発明の名称 ブリーフ形使い捨ておむつの製造方法

⑩ 特 願 平1-315742

⑩ 出 願 平1(1989)12月4日

⑩ 発 明 者 和 田 隆 男 大阪府摂津市南別府町15番21号 株式会社通光内

⑩ 出 願 人 株 式 会 社 通 光 大阪府摂津市南別府町15番21号

⑩ 代 理 人 弁 理 士 奥 村 文 雄

要 旨

1. 発明の名称

ブリーフ形使い捨ておむつの製造方法

2. 技術的課題

外装シートと内装シートとの間に吸収体を組み込んでおむつ本体を形成する工程と、

少なくとも両側面に内装シートを固める吸収体の両端部を吸収体部および両側面部を吸収体部を形成する工程と、

両側面部を吸収体とは反対方向に折り曲げる工程と、

折り曲げ部を二側面に折り曲げるとともに両側面部を吸収体部を形成させる工程と、

折り曲げた両側面部を吸収体部を形成するに切斷し、おむつ本体の両端部を形成して両側面部を吸収体部として一体化する工程と、

を工程とし、おむつ本体と、一方の両側面部を吸収体部により、ブリーフ形使い捨ておむつを製造することを特徴とする、ブリーフ形使い捨ておむつの製造方法。

3. 発明の技術的効果

○従来の技術的効果

本発明は、ブリーフ形使い捨ておむつの製造方法に関するものである。

○従来の技術

この種のブリーフ形使い捨ておむつの製造方法に於て、特許第31-17304号「おむつのブリーフおよびその製造方法」の公知技術が知られる。

○発明が解決すべき課題

上記の従来の技術においては、前記に於ておむつ本体を形成するための開口部を形成するための切斷工程が伴うので、切斷工程を形成するための工程を削減する等があり、製造コストが増大する問題がある。

○上記課題を解決するための手段

本発明は、おむつ本体を形成する工程と、両側面部および両側面部を形成する工程と、両側面部に於て吸収体部におむつ本体を形成し、おむつ本体と両側面部を一体化する工程とにより、前記従来の技術よりブリーフ

特開平3-176053(3)

ブリーフおいて出て居つとする工程を示し、b
口を開口ウコボ成に2a・3aの第2階段式3
a・3bを延長して第3階段式2a・3a及び第4
階段式2bとする。

測し推進装置の試験機に、測定方法に必要の
れたおむつ本数を推進するための電引推進装置
7人を加け、その地方の延岡推進装置7名におむ
つ本数を引渡し、延岡推進装置7名でおむつ本
数を30度延岡で受け取り、延岡では20・3
0度の測定装置に測定装置でおむつ本数を供給
して、おむつ本供給手段7を用いる。

つた、従って通風室78は吸引風道装置7Aの
風道面上の所定つ本体1を全付取り、吸引しつつ
1/4回転して第3通風装置6人と第4通風装置
6Bとの間における本体1を0度位置まで回
轉するものであるが、吸引風道装置7Aに接続し
て吸引配向ドラムを設けてドラムの周縁に排
吐する本体の吸着面を回轉させて0度位置まで
たのち吸引移送ベルトに引継ぎ吸引移送ベルトと
る通風装置と装置方向に排送しても、本体が回

（1）本國の勢力は、明治2・3年に開始であり、その
であり、明治五年には、平定、は、遼東の東遼平定
により、國勢を遂行することがある。

次に荷重を段々へ増進した後、ヒートシール、
荷重時の適宜の荷重手段により、本紙面を1
を何どう図り紙面を2 a、3 aと荷重して一
化下る。

そのうち、新選組手配へ要請し、新選組手配により二所以上に群れての喧嘩闘争の取次は2人と新選組の取次は3人とを定めて合わす。

きを合ひてた同族西り部同族は24・25の同族強受、同族同族平均10により推定するとともに、所定おはに明瞭して、ブリーフおはいいておひつ人を完成する。

○ 東 西 の 地 図

本発明は、一対の鋼線り線部材と、おむつ工
部とを、接着一体化し、所定寸法に形成すること
により、ブリーフ形態の形でおむつを形成するも
のであるから、おむつ工部は従来のおむつ製造ラ
インを利用することができ、また鋼線り部は海綿

10-一切開平校

出 版 人 廣 東 會 社 周 允
代 理 人 作 通 士 廣 州 文 館

ことで供給されることで、ベルト製造業による大
 成り製造方法とすることができて、目的の型
 コストでブリーフが使い回してお金を削減できる
 効果を実現するものである。

4. 國産の炭素全炭素

第1図は本発明によるブリーフ形成に於て成る
つの製造方法を示す説明図で、a図は成るべき部
の製造工程、b図は側面図部との一体化工程を示
し、それぞれ示すものである。

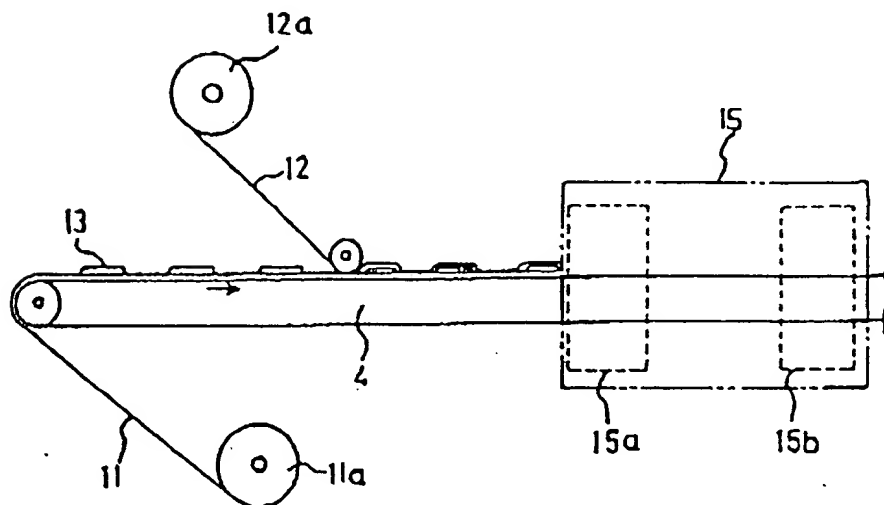
第2圖は各々の本体の収容器、第3圖は収容器
の入り込み及び取除の機構である。

第4図は五葉形により製造されたブリーフの概
い形で、おむつの四角図、第5図は平面図、第6図
は五葉のおむつの底面図である。

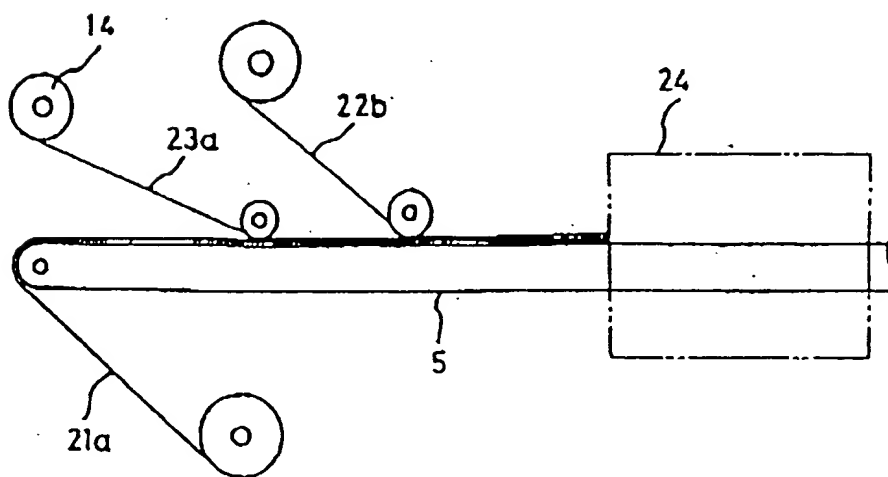
- 1 --- 一 窓 つ 五 郎
- 2 --- 一 買 取 興 隆 手 丸
- 3 --- 一 新 加 興 隆 手 丸
- 7 --- 一 窓 づ 五 郎 興 隆 手 丸
- 8 --- 一 閑 番 手 丸
- 9 --- 一 釘 屋 入 手 丸

特開平3-176053(4)

第1図 (a)

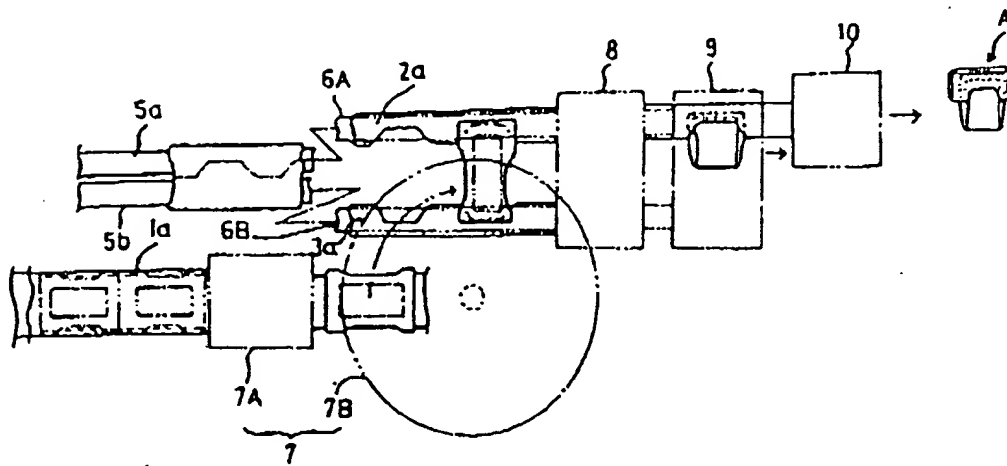


第1図 (b)

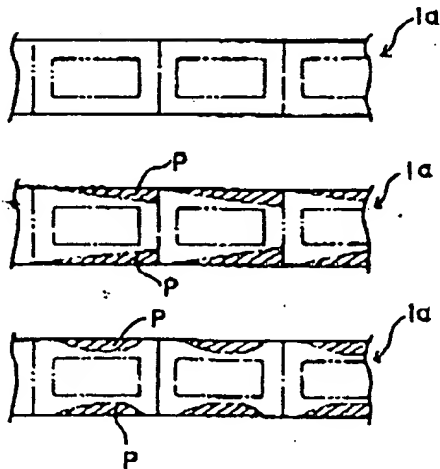


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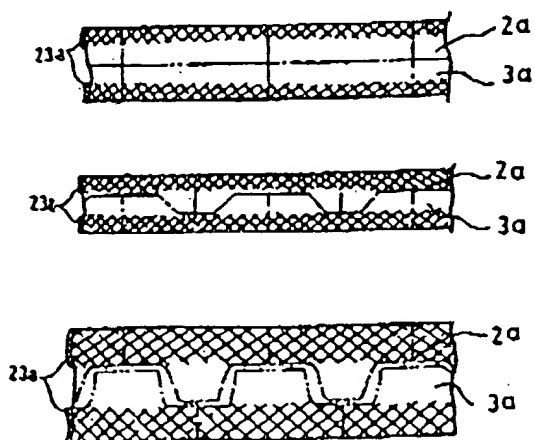
第1図(C)



第2図

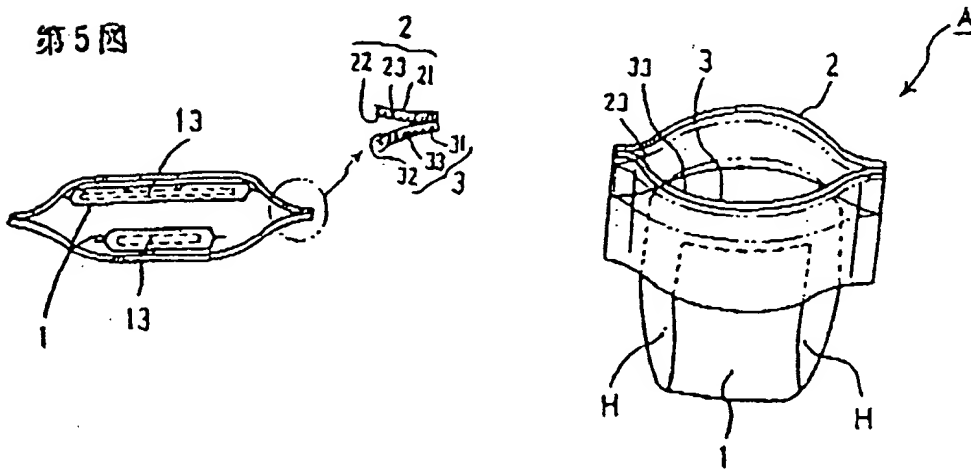


第3図

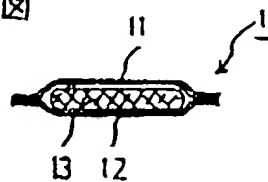


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第4图



第6图



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